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SB SAT @ AMSAT $ANS-068.01
PHASE 3-D COMES ALIVE!

HR AMSAT NEWS SERVICE BULLETIN 068.01 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.01

During the last week of February and the first week of March, major integration milestones for assembly and checkout of the AMSAT Phase 3-D satellite were accomplished by members of a combined international team working at the P3-D Lab in Orlando, Florida.

In a joint statement issued on March 7th, AMSAT-DL Vice President Werner Haas, DJ5KQ, and AMSAT-NA Executive Vice President Keith Baker, KB1SF, gave a brief rundown of the team's significant progress over the past two weeks.

"Phase 3-D is alive and doing very well!" said Werner. "We have now accomplished all the objectives we had hoped to achieve on this, our first major joint integration visit in Florida."

During this period, the combined team installed, powered up and then extensively tested the satellite's main power and computer (IHU) systems as well as transmitters for X-Band, V-Band and U-Band. All performed without problem. In addition, all of the spacecraft's many communications receivers have now been built into the satellite and they, too, were thoroughly tested and are now working well.

Likewise, the SCOPE camera experiment built by JAMSAT, the Japanese AMSAT group, was successfully installed and powered up while in the spacecraft. "First light" was also received via SCOPE during this test and the image quality of the initial pictures were absolutely superb.

Besides installing the various transmitters and receivers, Phase 3-D's Intermediate Frequency (IF) switching matrix, a device that will allow most any receiver to be cross linked to any transmitter, as well as the LEILA experiment (strong signal attenuator) were also successfully brought on line in the spacecraft.

Another major integration milestone came late Tuesday afternoon, March 4th, when team members Werner Haas (DJ5KQ), Peter Guelzow (DB2OS), Keith Baker (KB1SF), Stan Wood (WA4NFY) and Lou McFadin (W5DID) completed the first QSOs via Phase 3-D's configuration U/V "transponder". For this test, P3-D's U-Band receiver was cross-linked to the V-Band transmitter through the IF Matrix.

What's more, the distinctive "warble" warning tone and notch capabilities of P3-D's LEILA were clearly demonstrated when Stan Wood deliberately overpowered his SSB "uplink" signal, thus triggering LEILA to first superimpose its warning tone on his "downlink" signal. When Stan persisted in overpowering his uplink, team members then watched (in amazement!) as the LEILA cut his downlink signal via P3-D's V-Band amplifier from some 140 watts to about 2 watts! Needless to say, the members of the German

communications team were most pleased to finally show their American counterparts the fine quality and function of Phase 3-D's extremely capable communications suite.

On behalf of the P3-D Project Leader, Dr. Karl Meinzer, DJ4ZC, Werner and Peter expressed thanks for the fine hospitality shown by their American hosts. While much work remains to be accomplished, Phase 3-D's final integration and checkout is progressing on schedule for its anticipated launch in July. Stay tuned to ANS for further updates as work on making Phase 3-D "flight ready" continues.

[ANS thanks Keith Baker, KB1SF and Werner Haas, DJ5KQ, for the information that went into this bulletin item.]

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SB SAT @ AMSAT $ANS-068.02
PHASE 3-D FUNDING UPDATE

HR AMSAT NEWS SERVICE BULLETIN 068.02 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.02

While the Phase 3-D satellite was undergoing final integration in the next room, senior representatives of the Phase 3-D Integration Team also met at the P3-D Integration Lab in Orlando Florida in early March to discuss the latest fund status of the project.

In a joint news release on March 4th, Werner Haas, DJ5KQ, AMSAT-DL's Vice President and Keith Baker, AMSAT-NA's Executive Vice President outlined the success of the project's fund raising so far and the amount expended by each organization to date. In addition, they laid out a revised estimate of the funds that will be needed to finish and launch the satellite.

"The gap is closing, but we aren't out of the woods yet", Keith said.

As of December 31, 1996, the two major spending partners in the Phase 3-D effort, AMSAT-DL and AMSAT-NA, had together expended about $3 Million (US) on the project. This figure included some 2.5 Million Deutsche Marks (or about $1.6 Million (US)) by AMSAT-DL and about $1.4 Million (US) by AMSAT-NA. Assuming the mid-year launch schedule of Phase 3-D holds, ,and no major problems with the satellite or the launch are encountered, the P3-team estimates that another $700,000 to $800,000 will be expended to complete, test and ship the satellite as well as to conduct the launch campaign in Kourou, French Guyana, South America.

"When comparing needed out-of-pocket funding to complete the project with funds currently on hand or expected, the team now projects a combined funding shortfall of about $200,000. Recent contributions have contributed significantly to offsetting this deficit. But, even counting these large and most welcome donations, about $120,000 has yet to be identified to complete the project. "

"Of course, this all assumes an on-time launch from Kourou with no delays or other problems between now and then", Werner said. "If we incur a launch delay, or if the satellite develops problems during final integration and test, the amount of funds needed to finish and launch the satellite could be much greater."

On behalf of the combined P3-D Team, Keith expressed his gratitude to those who have given generously to the project over the years.

"Even during our labors to make Phase 3-D a technical reality, we are very grateful for the many sacrifices our donors have made to make the Phase 3-D satellite a fiscal reality as well." Baker went on to note that,

"Each of us on the Team remains ever-mindful that most of the money raised for P3-D came from individual Ham Radio Operators, many of whom have willingly postponed plans to buy one or more major pieces of equipment for their 'Ham Shacks' in exchange for contributions to sustain the project. This is a truly remarkable outpouring of support and is another example of the selfless sprit of Amateur Radio." he said.

The launch of Phase 3-D is now slated for early July aboard the next flight of the European Space Agency's Ariane 5 (Ariane 502) from Kourou, French Guyana.

[ANS thanks Werner Haas, DJ5KQ and Keith Baker, KB1SF, for the information that went into this bulletin item.]

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SB SAT @ AMSAT $ANS-068.03
RS-16 LAUNCHED

HR AMSAT NEWS SERVICE BULLETIN 068.03 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.03

A new Russian Amateur Radio satellite, listed as RS-16, has been launched from the Russian Cosmodrome Svobodny as part of a Zeya satellite package. RS-16 reportedly has an average orbital altitude of 276 miles, producing a footprint some 2000 miles in diameter on Earth.

On March 4, 1997, 1614 UTC, Jim White, WD0E, reported hearing strong signals from the RS-16 CW beacon on 29.408 MHz. Others in the US and Europe have reported strong signals on 10 meters. The transponders are not yet active. The twice-delayed launch had been expected as early as December. RS-16 is expected to be a Mode A (2 meters up/10 meters down) satellite, like RS-10 and RS-15. It's the first Russian satellite to have a 70-cm beacon, but the beacon there is not yet operational. Beacon frequencies are 29.408, 29.451, 435.504 and 435.548 MHz. The 29.408 MHz beacon is the 435.505 only active beacon on at this time

Andy, RK3KPK, passed along this preliminary frequency and transponder information on RS-16.
Uplink = 145.915 - 145.948 MHz
Downlink = 29.415 - 29.448 MHz
Beacons = 29.408 , 29.451 MHz
Pwr 29 MHz Down = 1.2 W /4 W

Beacon 1 = 435.504 MHz
Beacon 2 = 435.548 MHz
Pwr 435 MHz Beacons = 1.6 W

The following are the latest Keplerian elements for Radio Sputnik 16 (RS-16) from the NASA OIG RAID RBBS:
RS-16
1 24744U 97010A 97066.14889668 .00002139 00000-0 74153-4 0 367
2 24744 97.2814 333.1163 0009586 91.5327 268.6998 15.30875098 474

[ANS thanks the ARRL, Andy, RK3KPK, and Ken Ernandes, N2WWD for this report.]

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SB SAT @ AMSAT $ANS-068.04
STS-83/ SAREX INFO

HR AMSAT NEWS SERVICE BULLETIN 068.04 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.04

STS-83 is scheduled to launch on April 3rd, 1997 at approximately 2:01 p.m. EST. The launch window is 2 hours 30 minutes long. STS-83 will be a SAREX mission. The following information will aid in communicating with the shuttle.

The SAREX Working Group has designated the following frequencies during the STS-83 mission.

FM Voice Downlink: (Worldwide) 145.55 MHz
FM Voice Uplink: 144.91, 144.93, 144.95, 144.97, and 144.99 MHz
FM Voice Uplink: (Europe only) 144.70, 144.75, and 144.80 MHz
FM Packet Downlink: 145.55 MHz***
FM Packet Uplink: 144.49 MHz***

***If packet is on the air.

CONFIGURATION: Officially, the SAREX hardware will be flown in configuration B. SAREX configuration B is voice only, battery operation. The SAREX equipment on-board STS-83 includes the Motorola 2 meter FM hand-held transceiver, 15 spare batteries, the window antenna, SAREX headset assembly, personal recorder and the required interconnecting cables. Since STS-83 is an extended duration flight with power hungry primary experiments, the power allocated for SAREX is 0 watts. The SAREX team is also flying the Heathkit Packet Radio TNC for potential use later in the flight. In the event that power conservation measures are successful, the mission control team will advise SAREX and the astronauts to initiate use of the Packet Radio system which also includes one of the Shuttle Laptop computers. Please stay tuned to ANS and sarex@amsat.org during the mission for late breaking news regarding packet operation.

CALL SIGNS:
FM voice call signs: KC5RNI, KC5BTK and KC5FVF
FM packet call sign: W5RRR-1 (If turned on during the flight)

CREW MEMBERS (titles and Amateur Radio call signs):
James D. Halsell, Commander, KC5RNI
Susan L. Still, Pilot
Janice E. Voss, Payload Commander, KC5BTK
Donald A. Thomas, Mission Specialist, KC5FVF
Michael L. Gerhardt, Mission Specialist
Roger Crouch, Payload Specialist
Greg Linteris, Payload Specialist

QSL VIA: Send reports and QSLs to ARRL EAD, STS-83 QSL, 225 Main Street, Newington, CT 06111-1494, USA. Include the following information in your QSL or report: STS-83, date, time in UTC, frequency and mode (FM, voice or packet). In addition, you must also include a SASE using a large, business-sized envelope if you wish to receive a card.

Below is a prelaunch Keplerian element set for STS-83, provided by Gil Carman, WA5NOM, of the NASA Johnson Space Center.

STS-83

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1 99983U          97093.96818645  .00020853  00000-0  62025-4 0    36
2 99983  28.4669 306.6090 0004357 294.3836  65.6533 15.90889019    45

Satellite: STS-83
Catalog number: 99983
Epoch time:      97093.96818645    =    (03-Apr-97   23:14:11.309 UTC)
Element set:     003
Inclination:       28.4669 deg
RA of node:       306.6090 deg            Space Shuttle Flight STS-83
Eccentricity:     .0004357               Prelaunch element set JSC-003
Arg of perigee:   294.3836 deg          Launch:  03-Apr-97 19:01:00 UTC
Mean anomaly:      65.6533 deg
Mean motion:   15.90889019 rev/day               Gil Carman
Decay rate:     2.0853e-04 rev/day^2       NASA Johnson Space Center
Epoch rev:               4
Checksum:              348

Deorbit:  19-Apr-97 10:37 UTC  (orbit 250)
Landing:  19-Apr-97 11:37 UTC  (orbit 251)

[ANS thanks the SAREX Working Group for this information.]

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SB SAT @ AMSAT  $ANS-068.05
P3D BITS AND PIECES

HR AMSAT NEWS SERVICE BULLETIN 068.05 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
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There will be coverage of the Amsat P3D satellite project with video from
the
P3D-lab in Orlando Amsat-DL Marburg ( Dr. Karl Meinzer ) and IRS Stuttgart
( ATHOS plasma motor - prof Messerschmid ) on BRTN ( Belgian TV Dutch
program ) on March, 17 at 2200 local time. The program, from Frank
Debosere, is  named "alle vijf". This program can be viewed in central
Europe, Netherlands, Luxembourg Germany and parts of France and the UK.
This program is not on satellite.

[ANS thanks Freddy De Guchteneire,  ON6UG, for this information.]

Design News magazine for March 3, 1997 has a one-page article with a
drawing titled  "On a wing and a shoestring: Hams design their
next-generation communications satellite". The drawing  shows P3D with the
ESA adapter and SBS with a size comparison to AO13. This is in the
Engineering News section, page 42. Dick Jansson, WD4FAB, is quoted several
times in the article.

[ANS thanks Ed Krome, K9EK (ex-KA9LNV), for this report.]

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SB SAT @ AMSAT  $ANS-068.06
WEEKLY SATELLITE REPORT PT 1

HR AMSAT NEWS SERVICE BULLETIN 068.06 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.06

MIR:
(New frequencies implemented 1 January 1997:
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Uplink 145.2 MHz FM
Downlink 145.8MHz FM)
Note, the above split is used for both packet and voice operation.

SAFEX, MIR 70cm Repeater
(Uplink 435.750MHz FM, Downlink 437.950MHz FM,
Subaudible tone 141.3 Hz)
The repeater operational and active..

RS-10:
(Uplink 145.865-145.905MHz CW/SSB, Downlink 29.36-29.4MHz CW/SSB)
Operating normally. Very busy with lots of QSOs heard over
north America and Europe.

RS-12:
(Uplink 21.21-21.25MHz CW/SSB, Downlink 29.41-29.45MHz or
145.91-145.95Mhz CW/SSB)
The sat continues to provide excellent downlink signals in both T-
and K-mode. During the weekend of March 1st, the transponder was
swamped by the exuberant DX-contesters on 15m, thus raising the hopes
 of those of us on the east coast of the US for an ionospheric hop into
 the sat which may just make possible a QSO with the rare DX of
KH6-land.

[ANS thanks Dick Montgomery, N3DV, for this update.]

RS-15
(Uplink 145.858-145.898MHz CW/SSB, Downlink 29.354-29.394MHz CW/SSB)
Be aware that RS-15 has battery charging problems. When the satellite is
in the dark it has low output power..

[ANS thanks Geoff Perry for this report.]
(Hint: If SSB doesn't work for you, try CW. CW is very easy
to hear on the downlink!)

RS-16
Beacon operational only on 29.408 MHz at this time.
The transponders are not yet active.
RS-16
1 24744U 97010A   97066.14889668 .00002139 00000-0 74153-4 0   367
2 24744 97.2814 333.1163 0009586 91.5327 268.6998 15.30875098   474

FO-20
(Uplink 145.9-146.0MHz CW/LSB, Downlink 435.8-435.9MHz CW/USB)
Operating normally. Strong downlink signal.

KO-23
(Uplink 145.85, 145.9MHz FM, Downlink 435.175MHz FM,
9600 Baud FSK.)
KO-23 operating normally.

KO-25:
(Uplink 145.87MHz FM, Downlink 436.5MHz FM,
9600 Baud FSK.)
KO-25 operating normally.

[ANS thanks Jim Weisenberger, AA7KC, for his reports on
KO-25 and KO-23.]

AO-27:
(Uplink 145.85MHz FM, Downlink 436.8MHz FM)
Operating normally and lots of activity heard.
As of NOV 2, the AO-27 schedule is as follows:
  TEPR 4 = 16 = 8 Minutes in Length

TEPR 5 = 52 = 18 Minutes in Length

TX-3 is on Mid Power during TEPR 5.

This will have the TX turn on 8 Minutes after the satellite enters the sun for a duration of 18 Minutes. This is a "back to US Latitudes"operation.

N4USI, AO-27's current Command Station sends his thanks all for their messages about the satellite turning on later than expected. He reports he's deliberately letting the "turn on" time drift later (for about 4-5 Minutes) so stations in the southern latitudes can also have a chance to work AO-27. Every few months he will be letting the turn on time drift like this to give more stations a chance to make contacts thru the satellite.

[ANS thanks Michael, N4USI , AO-27 Control-op, for this update.]

FO-29
Voice/CW
(Uplink 145.9-146.0MHz CW/LSB, Downlink 435.8-435.9MHz CW/USB)
Digital
(Uplink 145.85, 145.87, 145.910 MHz FM, Downlink 435.910 MHz FM 9600 baud BPSK)
FO-29 is in Analog mode at the current time.

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SB SAT @ AMSAT $ANS-068.07
WEEKLY SATELLITE REPORT PT 2

HR AMSAT NEWS SERVICE BULLETIN 068.07 FROM AMSAT HQ
SILVER SPRING, MD, MARCH 09, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-068.07

AO-10:
(Uplink 435.030-435.18MHz CW/LSB, Downlink 145.975-145.825MHz CW/USB)
Operational. Many stations heard using the bird during the past week.
AO-10
1 14129U 83058B 97054.50000000 .00000010 00000-0 57107-5 0 5005
2 14129 25.8792 163.0281 6052907 93.3854 313.1701 2.05882272103000

[ANS thanks Ken Ernandes, N2WWD, for the updated keps.]

OSCAR-11
(Downlink 145.825MHz. FM, 1200 Baud PSK)
.The last month (14 January - 17 February) has been uneventful for OSCAR-11. Good, steady signals have been received from the 145.826 MHz. beacon. Mirek, OK2AOK reports hearing the mode-S beacon on January 25th. The signals peaked at S6 on a pass when the maximum elevation was 21 degrees.

[ANS thanks Clive Wallis, G3CWV, and Richard W L Limebear, G3RWL, for this information.]

AMSAT-OSCAR-16 (PACSAT)
(Uplink 145.9, 145.92, 145.94, 145.86MHz FM, Downlink 437.0513MHz SSB, 1200 Baud PSK.)
PACSAT (AO-16)
It is working normally in its orbits on Europe..
The WOD files are active again.

Graphic information about WOD/Telemetry values can be found
at:
http://arrakis.es/~ea1bcu/ao16.htm

[ANS thanks Miguel A. Menendez, EA1BCU, for this report.]

DO-17(DOVE)
(Downlink 145.825MHz FM, 1200 Baud AFSK.)
No changes reported during last few weeks

WEBERSAT (WO-18)
(Downlink 437.104MHz SSB, 1200 Baud PSK AX.25.)
Webersat (WO-18) is currently in MBL mode after last weeks system
crash. The satellite appears to be in good condition broadcasting
MBL telemetry.

BCRi316.43mA bplt 1.340C TxPw 0.231W 5 V 5.742V 8.5V10.008V 10V
14.036V

 [ANS thanks Tommy Davis, IK3WVJ, for this report.]

LUSAT-OSCAR-19
(Uplink 145.84, 145.86, 145.88, 145.9MHz FM, Downlink 437.1528MHz SSB,
1200 Baud PSK AX.25.)
LUSAT (LO-19)is working excellently in its orbits on Europe.

[ANS thanks Miguel A. Menendez, EA1BCU, for this report.]

IO-26 (ITAMSAT):
(Uplink 145.875, 145.9, 145.925, 145.95MHz FM, Downlink 435.822MHz SSB,
1200 Baud PSK.)
IO-26 controllers report that the spacecraft is now in IHT mode. The new
ROBOT software is under currently undergoing tests. The beacon reports
that the digipeater is OFF and that the ROBOT is undergoing tests.
Controllers ask that groundstations please do not transmit on any of
the satellite's uplink frequencies for the time being.

[ANS thanks Daniele Piercarlo, IK2XRO, ITMSAT Command Station for this
report.]

[Please send your Satellite or News reports to ANS Editor B.J. Arts, WT0N,
via e-mail, at bjarts@uslink.net or to wt0n@amsat.org]

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